25. The mixture of claim [20] ~~31~~ 33 wherein said mixture forms a library having activity against at least one bacterial, viral, nutritional or metabolic disease.

26. The mixture of claim [20] ~~31~~ 33 wherein said mixture [form] forms a library having activity against at least one [agricultural pest, household] pest, bacteria, fungus, mold, or mildew[, or form of decay].

REMARKS

Applicant has elected to prosecute the invention of Group I, claims 1-26. Accordingly, claims 27-30 have been canceled without prejudice to being presented in a later divisional application.

Claims 1 and 20-23 have been canceled.

Claims 2-8, 12-19 and 24-26 have been amended.

Claim 31 has been added.

Claims 2-19, 24-26 and 31 are pending in this application.

Claim 25 stands rejected under 35 U.S.C. § 112, first paragraph, for allegedly not reasonably providing enablement for the phrase "form of decay." Applicant respectfully points out that claim 25 does not recite such a phrase. It appears that a typographical error has resulted in claim 25 being substituted for claim 26. Accordingly, this rejection will be applied to claim 26. Applicant has amended claim 26 which renders this rejection moot.

Claims 7, 9, 11, 12, 14, 15-19 and 25 stand rejected under 35 U.S.C. § 112, second paragraph, for allegedly being indefinite. Claims 7 and 9 have been rejected for the alleged indefiniteness of the term "nucleophilic." Nucleophilicity is inherent in any given atom. The term "nucleophilic" is routinely used by the art-skilled. Thus claims 7 and 9 are not indefinite. As such, this rejection is inappropriate and must be withdrawn.

Claims 11 and 12 stand rejected for the alleged indefiniteness of the term "electrophilic." Once again, electrophilicity is a chemical property which is inherent in any given atom. It is routinely used by the art-skilled. Consequently, claims 11 and 12 are not indefinite. As such, this rejection is inappropriate and must be withdrawn.

Claims 14 and 15 stand rejected for allegedly being vague and indefinite. Applicant respectfully points out that "synthesized simultaneously in solution" means that all the compounds are synthesized together. This may be via a single step or multiple steps of an iterative reaction series. Applicant's invention encompasses the one-pot addition of various different chemical substituents to a scaffold to produce a mixture of compounds. In fact, the specification, on page 4, lines 18 to 29, and page 9, lines 16 to 22, clearly describes the simultaneous synthesis of compounds of the invention.

Further, it is stated that the phrase "solution phase" in claims 14 and 15 is vague and indefinite. Although Applicant's

invention can be practiced using solid supports, it is preferred that the libraries be prepared using solution phase chemistry. In fact, the specification, on page 7, lines 8 to 13, indicates that an important aspect of the invention is preparation of diverse libraries in solution phase. Also, the specification, on page 9, lines 4 to 16, clearly shows that Applicant intends solution phase synthesis, as opposed to solid phase synthesis which would involve the use of solid supports that do not dissolve, to allow the reaction to progress in solution phase. Use of the phrase "solution phase" means that the scaffolds and chemical reagents are soluble in the reaction solvent such that the reaction occurs in solution phase. As a soluble support dissolves in the reaction solvent, its use is clearly encompassed by Applicant's invention. It is clear to the art-skilled that solution phase chemistry encompasses reactions without the use of solid supports which are not soluble in the reaction solvent. It is also clear to the art-skilled that solution phase chemistry encompasses the use of soluble supports that dissolve in the reaction solvent such that the reaction is performed in solution phase. As such this rejection of claims 14 and 15 is inappropriate, and Applicant respectfully requests that it be withdrawn.

Claim 16 stands rejected for insufficient antecedent basis. Applicant has amended claim 16 which renders this rejection moot.

Claims 17 and 18 stand rejected for allegedly being indefinite. Applicant respectfully points out that reacting a

chemical compound of the invention with a further reactant means substituting an atom on said chemical compound with a further chemical substituent. As such the reactant is not undefined. In fact, neither the reaction nor the product is unspecified. From the nature of the chemical substituent the art-skilled clearly knows the type of reaction that will occur and the structure of the product that will be produced. There is no ambiguity or indefiniteness involved when the chemical substituent is known. To further prosecution, however, Applicant has amended claims 17 and 18, which renders this rejection moot.

Claim 19 stands rejected for allegedly being indefinite. It is indicated in the Office Action that ring-opening, ring expansion, bicylization or alteration subsequent to the substitution would not allow the structure of the product to be clearly defined. Applicant respectfully disagrees. For a particular chemical compound, if, for example, a ring opening reaction is performed, the resultant product would be clearly defined. Similarly, for any particular chemical compound, the product obtained from ring expansion, bicyclization or another substitution would be known from the type of reagents used to effect the reaction and the nature of the reaction conditions chosen. It is within the expertise of the art-skilled to determine the structure of a product based on the chemical compound undergoing reaction, the reactants, the solvents and the reaction

conditions. In fact, it is routine practice for the art-skilled. Accordingly, Applicant requests that this rejection be withdrawn.

It is further stated in the Office Action that the phrase "ring closed" in claim 19 is vague and indefinite. Even though the scaffolds of the invention are already ring structures, these scaffolds can still undergo ring closing reactions whereby additional rings may be formed. The chemical substituents present on the scaffolds may be chosen such that ring closing reactions can occur. In the art, ring closing reactions are routinely practiced on cyclic compounds such that the concept is not vague and indefinite. Upon knowing the chemical compound, with its substituents, and the reactants, solvents and conditions for ring closure, the art-skilled will recognize the nature of the reaction that will occur, and can predict the structure of the product that will be thus produced. As such, there is nothing vague and indefinite about subjecting chemical compounds with heterocyclic scaffolds to ring closing reactions. Accordingly, Applicant submits that this rejection is inappropriate and should, therefore, be withdrawn.

Claim 25 stands rejected for reciting the phrase "form of decay." Applicant respectfully points out that claim 25 does not recite such a phrase. It appears that there has been a typographical error substituting claim 25 for claim 26. Accordingly, this rejection will be applied to claim 26. Even though it is known to the art-skilled that "form of decay" as

applied to the relevant art does not include aging, hull rusting or loss of soil from a stream bank, Applicant has amended claim 26 to render this rejection moot.

Further, it is stated that claim 25 recites mixtures having activity against agricultural pests or household pests. Once again, Applicant respectfully points out that claim 25 does not recite such mixtures. As before, this rejection will be applied to claim 26. Although it is clear to the art-skilled which pests are agricultural and which are household, Applicant has amended claim 26 to facilitate timely prosecution of this application.

Claims 1-3, 5 and 13-15 stand rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by Michnick *et al.* (hereinafter "the Michnick reference"). The Office Action states that the Michnick reference teaches "a plurality of inventive compounds," and so allegedly clearly anticipates the mixtures of claims 1, 2, 3, 5 and 13-15. The Michnick reference provides a group of compounds that are effective agents for inhibiting specific cellular signaling events. These compounds are intended to be used individually. In fact, all the examples, which represent the scope of the reference as prior art, teach the individual use of the compounds. There are absolutely no examples or teachings of how the compounds described in the reference may be used as a mixture.

In contrast, Applicant clearly teaches mixtures of chemical compounds intended to be used together. The specification provides

several examples where mixtures of chemical compounds are synthesized for use against bacteria, fungus and other biological agents. For example, Examples 90 to 98, on pages 110 to 115, teach the synthesis of various libraries of chemical compounds. Further, as examples, the use of libraries or mixtures of chemical compounds according to the invention is taught in Procedures 1 to 4, on pages 123 to 131, and in Procedures 6 to 8, on pages 132 to 140. Thus Applicant has taught his invention, which is markedly different from the compounds described in the Michnick reference. Accordingly, it is respectfully requested that this rejection be withdrawn.

Claims 1-15 and 20-26 stand rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by Summerton *et al.* (hereinafter "the Summerton reference.") The Summerton reference teaches morpholino-subunit polymer compositions. The compounds described in the Summerton reference have a morpholino backbone with 1'-substitutions on the morpholine ring. These substitutions are varied to form different compounds. Accordingly, the morpholino backbone is like a scaffold, and the various substitutions at the 1'-position of morpholine are the chemical substituents. According to the Summerton reference, the morpholine backbone remains constant while the 1'-substitutions are varied to form a library of morpholino compounds.

In contrast, Applicant's invention teaches scaffolds that are purines and pyrimidines, not morpholine. Further, the purine or

pyrimidine scaffold is then substituted with various chemical substituents to form a mixture of chemical compounds. Even if the Summerton reference is construed to describe a purine or pyrimidine substituent at the 1'-position of the morpholine backbone, and the morpholine moiety, with varying linkages, is considered to be the chemical substituent, this reference does not anticipate Applicant's invention because Applicant's invention does not describe the use of oligomers as chemical substituents. Preferred chemical substituents according to Applicant's invention are described in the specification, on page 12, line 17, to page 13, line 19. Clearly, an oligomer having a morpholino backbone is not a chemical substituent according to Applicant's invention. Applicant submits that this rejection is inappropriate and, therefore, should be withdrawn.

Claims 1-3, 5-15 and 17-26 stand rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by Pavia *et al.* (hereinafter "the Pavia reference.") Applicant has canceled claim 1 and substituted claim 27 therefor. Applicant has further canceled claims 20-23. Thus this rejection is rendered moot.

In view of the foregoing, Applicant submits that the claims presently before the Examiner patentably define the invention over the applied art and are otherwise in condition for ready allowance. An early Office Action to that effect is, therefore, earnestly solicited.

Respectfully submitted,

John W. Caldwell
Registration No. 28,937

Date: **October 28, 1998**

WOODCOCK WASHBURN KURTZ
MACKIEWICZ & NORRIS
One Liberty Place - 46th Floor
Philadelphia, PA 19103
(215) 568-3100